

Appl. No. 10/683,764
Amdt. dated Sep. 9, 2005
Reply to Office action of Mar. 9, 2005

Amendments to the Claims:

This listing of claims replaces all prior versions, and listing, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for treating a lignocellulosic substrate, the method comprising:

~~implanting the lignocellulosic substrate with a conductive material into the lignocellulosic substrate~~ cocalkylamine that increases the conductivity of the lignocellulosic substrate without covalently bonding to the lignocellulosic substrate or chemically reacting with the lignocellulosic substrate;

pre-heating the implanted lignocellulosic substrate;

coating the pre-heated implanted lignocellulosic substrate with a powder coating;

and

curing the powder coated substrate.

Claim 2 (original): The method of claim 1 wherein the lignocellulosic substrate comprises a wood or wood composite.

Claim 3 (original): The method of claim 1 wherein the conductive material is in a liquid form.

Claim 4 (original): The method of claim 3 wherein the liquid conductive material is implanted into the substrate by spraying, dipping, brushing, or chemical vapor deposition.

Claim 5 (original): The method of claim 1 wherein the conductive material is in a gas form.

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Claim 6 (original): The method of claim 5 wherein the gas conductive material is implanted into the substrate by chemical vapor deposition, plasma source ion implantation, or diffusion.

Claim 7 (original): The method of claim 1 wherein the conductive material is in a solid form.

Claim 8 (currently amended): The method of claim 7 wherein the solid conductive material is implanted into the substrate by ~~meechanical force~~ and diffusion.

Claim 9 (original): The method of claim 1 wherein the substrate is heated by a furnace, or infra-red heat source.

Claim 10 (currently amended): The method of claim 1 wherein the powder is selected from ~~[[a]]~~ the group consisting of epoxy, acrylic, and polyester.

Claim 11 (original): The method of claim 1 wherein the powder is cured thermally, via ultraviolet light radiation, or via electron-beam radiation.

Claim 12 (currently amended): A method for implanting a lignocellulosic substrate, the method comprising:

applying a solution comprising a liquid component and ~~an anti-static component~~ a cocalkylamine to the lignocellulosic substrate;

allowing the ~~anti-static component~~ cocalkylamine to implant into the ~~surface of~~ the lignocellulosic substrate to increase the conductivity of the lignocellulosic substrate without ~~chemically~~ covalently bonding or chemically reacting with the lignocellulosic substrate; and

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removing at least some of the liquid component from the lignocellulosic substrate whereby the lignocellulosic substrate is enabled to provide an electrically conductive substrate for a subsequent electrostatic coating process.

Claim 13 (original): The method of claim 12 wherein removing at least some of the liquid component includes heating the lignocellulosic substrate.

Claim 14 (original): The method of claim 13 wherein the application of solution to the lignocellulosic substrate is repeated after the heating.

Claim 15 (original): The method of claim 13 wherein the application of solution to the lignocellulosic substrate is repeated prior to the heating.

Claim 16 (currently amended): The method of claim 12 wherein the cocalkylamine antistatic component comprises an ~~organic amine salt~~ a polyoxyethylene cocalkylamine.

Claim 17 (currently amended): The method of claim ~~12~~ 16 wherein the cocalkylamine organic amine salt is Cocoalkylmethylbis(2-hydroxyethyl) ammonium chloride.

Claim 18 (currently amended): The method of claim 12 wherein the cocalkylamine antistatic component ~~comprises an organic amine~~ is substituted with one or more functional groups comprising hydroxyl, bromo, fluoro, chloro, iodo, mercapto or thio, cyano, alkylthio, heterocyclyl, aryl, heteroaryl, carboxyl, carbalkoyl, alkyl, alkenyl, nitro, amino, alkoxyl, amido or combinations thereof.

Claim 19 (currently amended): The method of claim ~~12~~ 18 wherein the cocalkylamine organic amine is polyoxyethylene (15) cocoalkylamines.

Claim 20 (original): A product formed by the method of claim 12.

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Claim 21 (currently amended): A method for powder coating a medium density fiberboard (MDF) substrate, the method comprising the steps of:

treating the MDF substrate with a solution including ~~an amine salt~~ a cocalkylamine and a solvent;

allowing the ~~amine salt~~ cocalkylamine to implant into the MDF substrate ~~in a non-chemically bonded mechanism to increase the conductivity of the MDF substrate~~ without covalently bonding or chemically reacting with the MDF substrate;

heating the implanted MDF substrate to remove a majority of the solvent;

applying an electrical voltage to the heated MDF substrate; and

applying a charged coating substance to the voltage applied MDF substrate.

Claim 22 (currently amended): The method of claim ~~[[20]]~~ 21 wherein the applied voltage is electrical ground.

Claim 23 (currently amended): The method of claim ~~[[20]]~~ 21 wherein the heating step is performed at a substrate temperature from about 100° to 400° F.